

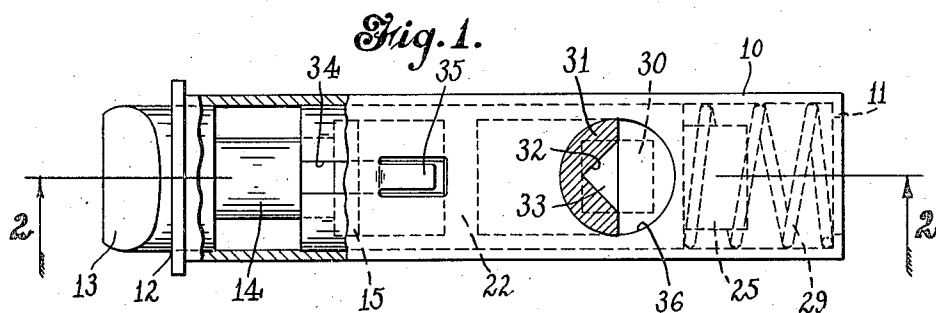
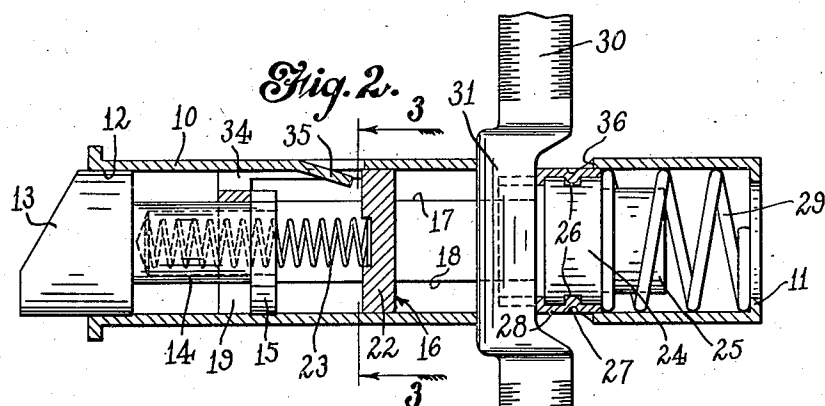
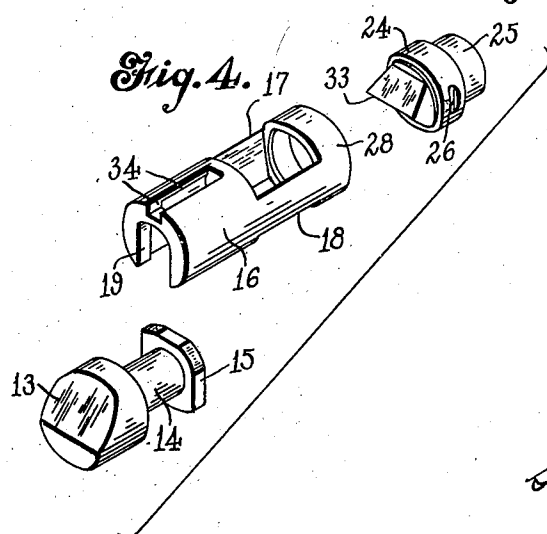
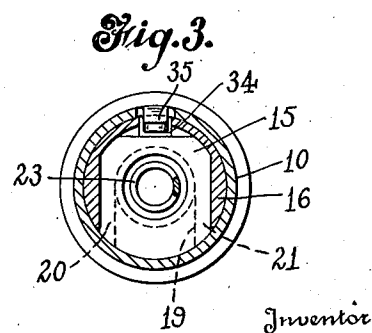
Feb. 20, 1945.

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2,369,874

SCREEN DOOR LATCH

Filed May 21, 1943



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UNITED STATES PATENT OFFICE

2,369,874

SCREEN DOOR LATCH

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Application May 21, 1943, Serial No. 487,855

4 Claims. (Cl. 292-169)

This invention relates to door latches, and more particularly to a device of that character which may be enclosed in a suitable case and which is of simple and inexpensive construction adapted particularly for doors of light weight, such as screen doors for example.

It has generally been the case in latches of this character now in use that the same are shipped in disassembled condition so that they may be contained in a compact package in order to save shipping space. The mechanism of the latch may be inserted into the case prior to shipping but there is usually nothing to retain it in the case, and in that fashion the parts very often drop out of the case when the latch is unpacked. When this occurs, very often the parts are not re-assembled in proper position within the case, or, if so, are only so assembled with difficulty and with an expenditure of considerable time.

I contemplate in the present invention to provide a self-contained latch of this character wherein all of the latch mechanism except the spindle may be enclosed within the tubular case at the factory and secured permanently therein, so that it may be shipped within the case and so that there will be no danger of the parts dropping out of the case or becoming displaced. Moreover, the spindle, while not mounted within the case at the time of shipment, may be inserted through transverse openings in the case very readily at the time the latch is mounted, the spindle being of such construction that it is a very simple matter to insert it in the proper position for operation.

One object of the present invention is the provision of a door latch of simple and inexpensive construction, the parts of which are so arranged that they may be permanently secured within the case.

A still further object of the invention is the provision of a door latch of the type described having a detent formed integrally with the case for retaining the bolt and associated parts therein.

A still further object of the invention is the provision of a door latch of the character described, having a simple and inexpensive arrangement for retaining the bolt and associated parts in position within the case and also for retaining these parts from rotational displacement within the case whereby the latch may be readily installed upon a door without the necessity of reversing the position of the parts of the mechanism in the case.

To these and other ends the invention relates

to the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Fig. 1 is a side elevational view of a latch embodying my improvements, some parts being shown in section for the sake of clearness;

Fig. 2 is a longitudinal sectional view on line 2-2 of Fig. 1;

Fig. 3 is a transverse sectional view on line 3-3 of Fig. 2; and

Fig. 4 is an exploded view of the parts of the latch mechanism.

To illustrate a preferred embodiment of my invention I have shown a latch case 10 of tubular form, the case being partly closed at the back as shown at 11 and being open at the front end as at 12 for the projection therefrom of the bolt head 13. As shown the case is integrally formed in one piece and is devoid of seams.

The bolt consists of the head 13 previously referred to, a stem 14 secured to the rear face of the head, and a crosshead 15 at the rear end of the stem—the bolt being slidably mounted in the case as is the usual practice.

Also slidably mounted in the tubular case 10 is a retracting member 16 of generally tubular form having openings 17 and 18 between its front and rear edges through which the knob spindle is adapted to extend as will be described hereinafter. At its front end the cylindrical portion of the retractor is slotted as shown at 19 in such a manner as to provide shoulders 20 and 21 at each side of the slot. This provides a simple method of securing the bolt to the retractor as the crosshead 15 on the bolt may be inserted laterally into the cylindrical portion of the retractor with the stem 14 lying in the opening 19 and the edges of the crosshead 15 lying behind the shoulders 20 and 21 so that the retractor will draw the bolt rearwardly when it is moved in that direction.

The retractor is also provided with an intermediate partition 22 against which acts a compression spring 23 which extends forwardly into the hollow stem 14 of the bolt to urge the bolt to protracted position. It will be obvious that with this arrangement when the door is closed the bolt is permitted to be withdrawn into the case against the tension of spring 23 without moving the retractor.

The retractor is closed at its rear end by a plug 24 having thereon a reduced end 25, and as shown in Fig. 2 the portion 24 is provided with recesses 26 into which are staked portions 27 of the rear end 28 of the retractor so as to hold

these parts together. A spring 29 acts against the rear end of the case and surrounds the portion 25 of the plug 24 to act against the retractor or the plug and thus urge the retractor to its forward position. It will usually be preferred to provide a spring 29 of some greater power than the spring 23 so that the retractor will usually be held in its forward position when the door is being closed and the bolt retracted by engagement with the strike plate.

The latch is provided with the usual knob spindle 30 having a crank portion 31, which at its rear face is provided with a V-shape notch 32 (Fig. 1) to cooperate with a complementarily shaped member 33 at the front end of the plug 24. As will be seen from Fig. 1, when the knob spindle is turned the lobe portions of the parts 32 and 33 will effect rearward movement of the retractor and thus retract the bolt to permit the door to be opened. The forward portion of the retractor is provided with a longitudinal recess 34 and a tongue 35 is struck from the tubular case, the free end of this tongue lying within the recess so that while the retractor is permitted a restricting sliding movement within the case it is prevented from rotation and the retractor, the bolt, and associated parts at all times will be held in their proper positions with respect to the openings 36 in the case through which the spindle projects. Likewise, the free end of the tongue 35 will stand in the path of the upper portion of the partition 22 of the retractor so as to retain the latch mechanism within the casing. As shown in Fig. 2 of the drawing the retractor is held in a rearward position by contact of the V-shaped portion 33 against the crank portion 31 of the spindle so that when the lock is in use the tongue 35 will not usually engage the part 22. However, when the latch is shipped the spindle is usually not in its assembled position and the removal of the spindle permits the latch parts to be thrust forwardly by the spring 29. In that event, the tongue 35 will engage the member 22 and retain the parts in assembled position within the case and in their proper position for mounting upon a door.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown but is capable of modification and variation within the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. A latch bolt construction comprising a casing having an opening at the front end thereof, a bolt reciprocally mounted in the casing, a retractor also reciprocally mounted in the casing and non-rotatably connected with said bolt, spring means urging said retractor in a forward direction, means rotatably mounted in the casing for actuating said retractor, an integrally formed inwardly projecting lip carried by the wall of the casing and said retractor being provided with

a longitudinal recess in which said lip is slidably engaged to limit forward movement of the bolt and prevent rotation of the retractor within the casing.

2. A latch bolt construction comprising a casing having an opening at the front end thereof, a bolt reciprocally mounted in the casing, a retractor also reciprocally mounted in the casing and non-rotatably connected with said bolt, said bolt and retractor being insertable through said opening, spring means urging said retractor in a forward direction, means rotatably mounted in the casing for actuating said retractor, and said retractor being provided with a longitudinal recess adjacent the casing wall and said wall having an integrally formed, inwardly projecting lip extending into said recess and engaging a part of the retractor at its rear end to prevent rotation of the retractor and retain it within the casing.

3. A latch bolt construction comprising a tubular casing of uniform diameter having an opening at the front end thereof, a bolt reciprocally mounted in the casing, a retractor also reciprocally mounted in the casing and connected with said bolt, said bolt and retractor being insertable into the casing through said opening, spring means urging said retractor in a forward direction, means rotatably mounted in the casing for actuating said retractor, said bolt being detachably non-rotatably connected to said retractor, said connection comprising a stem on the bolt extending through an opening in the retractor and a crosshead on said stem engaging behind a portion of the retractor additional spring means to urge said bolt forwardly relatively to the retractor and interengaging means on said casing and retractor to prevent retraction of the latter and retain it in the casing.

4. A latch bolt construction comprising a casing having an opening at the front end thereof, said casing being of cylindrical form and of uniform diameter, a bolt reciprocally mounted in the casing, a retractor also reciprocally mounted in the casing and connected with said bolt, said bolt and retractor being insertable into the casing through said opening, spring means urging said retractor in a forward direction, means rotatably mounted in the casing for actuating said retractor, means formed integrally with the casing for retaining said bolt therein, said means comprising an inwardly projecting lip on the casing and said retractor having an opening in which said lip is slidably received, said bolt being detachably connected to said retractor and said connection comprising a stem on the bolt extending through an opening in the retractor and a crosshead on said stem engaging behind a portion of the retractor, and a spring acting at one end against the bolt and at its rear end against a part of the retractor to urge the bolt forwardly with respect to the retractor.

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